



DEPARTMENT OF THE NAVY  
OFFICE OF THE CHIEF OF NAVAL OPERATIONS  
WASHINGTON, DC 20350

10 pages

IN REPLY REFER TO  
OPNAVINST 9010.300A  
Op-03C  
09/5U300729  
11 January 1985

OPNAV INSTRUCTION 9010.300A

Subj: DEVELOPMENT OF NAVAL SHIP CHARACTERISTICS

Ref: (a) OPNAVINST 5420.2N (NOTAL)  
(b) OPNAVINST 5000.42B (NOTAL)  
(c) OPNAVINST 7000.17A (NOTAL)  
(d) DODINST 5000.2 of 8 March 1983 (NOTAL)

Encl: (1) Naval Ship Acquisition Process  
(2) Top Level Requirements (TLR) Outline  
(3) Program Documentation by ACAT for Shipbuilding Programs

1. Purpose. To provide guidance and procedures for the orderly development of ship characteristics. Every section is significantly modified because of the magnitude of the organizational and procedural changes since the original instruction was issued. (R)

2. Cancellation. OPNAVINST 9010.300. (R)

3. Background. For the past ten years, translation of Chief of Naval Operations requirements for ships into ship designs was documented with a Top Level Requirement (TLR) and a Top Level Specification (TLS). This process provided the documentation needed to record design decisions, but did not establish a forum for the timely exchange of information between OPNAV and CHNAVMAT during early design phases. Also, the TLR provided excessive detail, was a difficult document to use and often was never approved formally by OPNAV. The establishment of the Ship Characteristics and Improvement Board (SCIB), reference (a), and recent changes in CNO program initiation procedures, reference (b), provided an opportunity to improve this process. As part of this improvement, the format of the TLR is revised and simplified and the TLS is replaced by Design Reports. In addition, SCIB participation in overall ship design and acquisition process and requirements for documentation and SCIB approvals are defined. (R)

4. Policy. All new ship acquisition programs and all major ship modifications will follow ship characteristics development procedures outlined in this instruction. (R)

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5. Procedure

- R) a. Enclosure (1) contains an overview of the acquisition process for Navy ships. The first step in Navy ship acquisition is initiated when OPNAV approves and issues the Tentative Operational Requirement (TOR) to CHNAVMAT, following a review of the draft TOR by all principals. CHNAVMAT forwards the TOR to COMNAVSEASYS COM with any additional guidance and written direction to proceed. The TOR provides COMNAVSEASYS COM with a general statement of a perceived requirement so a range of alternative solutions can be explored. COMNAVSEASYS COM will respond formally to the TOR with a Development Options Paper (DOP). The development of options for Navy ship designs requires a continual dialogue between OPNAV and COMNAVSEASYS COM. A SCIB Working Group, as defined in reference (a) will be formed for each TOR issued that is intended to result in a new ship design or a major ship modification. The SCIB Working Group, which will be chaired normally by the OPNAV sponsor for the TOR, will meet regularly to review progress of the options development and provide additional written guidance and tasking for specific ship feasibility studies as necessary. As directed by reference (b), options considered must cover the complete range of reasonable possibilities both as to capability and cost. The Working Group must identify those aspects of performance early-on that are major cost drivers and address the requirements for those aspects of performance initially before addressing secondary requirements.
- R) b. When the Working Group determines that the major requirements issues have been addressed adequately and the group is ready to make a recommendation to the SCIB, a meeting of the SCIB will be convened. The viable options, with their preliminary characteristics, will be provided to the SCIB in the DOP. Class "F" acquisition cost, reference (c), and total life cycle cost estimates for the alternatives will be provided also. The SCIB will consider the options and select one before preliminary design is initiated (Milestone I).
- R) c. The requirements for the chosen option and its preliminary characteristics will be documented in an Operational Requirement (OR), defined in reference (b), developed by the OPNAV sponsor and approved by Director Naval Warfare (OP-095) to initiate preliminary design. For programs designated as Acquisition Category (ACAT) I, a Justification for Major System New Start (JMSNS) is prepared by OPNAV instead of an OR, in accordance with reference (d).
- R) d. During preliminary design, a TLR will be developed by OPNAV. The format for the TLR is defined in enclosure (2). The SCIB Working Group will assist the program sponsor in development and review of the TLR during preliminary design phase. COMNAVSEASYS COM will respond formally to the OR or JMSNS with a Preliminary Design Report (PDR). At the completion of preliminary design, the PDR will be provided with an updated ship acquisition cost estimate. An official Class "C"

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acquisition cost estimate will be provided by COMNAVSEASYS COM at the time of the next NAVCOMPT budget submit following completion of preliminary design, if the program is included in the budget. The PDR will describe the characteristics of a ship design which is compatible with the TLR. Unresolved issues will be identified and resolved prior to Milestone II. The TLR must be approved by the SCIB, prior to being issued by the OPNAV sponsor, to initiate contract design. Prior to Contract Design starting, a SCIB meeting (non-milestone) will be held to review the outputs of Preliminary Design.

e. The SCIB Working Group will remain constituted formally during contract design but will be convened only by the Chairman to assist in resolving issues which arise. If the Working Group concludes that TLR modifications are necessary, recommended changes will be presented to the SCIB for approval prior to being issued by the OPNAV sponsor for incorporation into the ship design. After major subsystem trade-offs are complete and cost estimates are more firm, a Milestone II decision will be held. For ACAT I and IIS, a SCIB will be held prior to the Department of Navy System Acquisition Review Council review. The results of this review will be contained in a SCIB Review Memorandum (SRM). For ACAT IIC programs, the SCIB meeting will yield a Navy Decision Coordination Paper (NDCP). This is the decision authority document for Milestone II, which provides approval for lead ship. For ACAT III category programs, a sponsors program review will be held prior to a SCIB review. At the completion of the contract design, a Contract Design Report, an update of the PDR, will be developed by COMNAVSEASYS COM summarizing how the ship design meets the requirements and constraints of the TLR. (R)

f. If it becomes necessary to modify the TLR during contract design or detail design and construction, recommended changes will be presented to the Chairman of the SCIB. The Chairman will decide whether changes warrant full SCIB review or can be approved by the OPNAV sponsor. (R)

g. Milestone III serves as approval for follow ships. At this point in the acquisition of the ship program, the SCIB will review the status of the lead ship and any follow ship TLR changes to ensure satisfactory execution of the follow ship award. (R)

## 6. Action

a. OPNAV program sponsors for ship acquisition programs and major ship modifications shall develop program initiation documentation (TORs and ORs) in accordance with reference (b) and shall provide the chairman for each SCIB Working Group. Program documentation for shipbuilding programs at enclosure (3) shall be developed by the OPNAV sponsor. This is consistent with the intent of reference (b), but changes the required documents to reflect SCIB process and the unique nature of ship acquisition programs. The OPNAV sponsor shall develop the TLR during preliminary design, with the support of the Working Group. (R)

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- R) b. COMNAVSEASYSCOM shall perform the engineering studies necessary to provide Development Options Papers in response to TORs. After receipt of an approved OR or JMSNS, COMNAVSEASYSCOM shall develop a preliminary design and document it in a Preliminary Design Report. Following receipt of a signed TLR, COMNAVSEASYSCOM shall develop a contract design, producing specifications, drawings and a Contract Design Report. For all design phases, NAVSEA shall prepare the appropriate cost estimates to support the SCIB decision process. The decision documents and the TLR provide the guidance to CHNAVMAT and COMNAVSEASYSCOM for development of each ship program. NAVSEA shall promulgate detailed instructions on the content, format, development, review and use of Preliminary and Contract Design Reports.
- R) 7. Nuclear Propulsion. No part of this instruction shall change existing responsibilities for determination of requirements, design, specifications, installation or test of nuclear propulsion plants.

*Ronald Hays*

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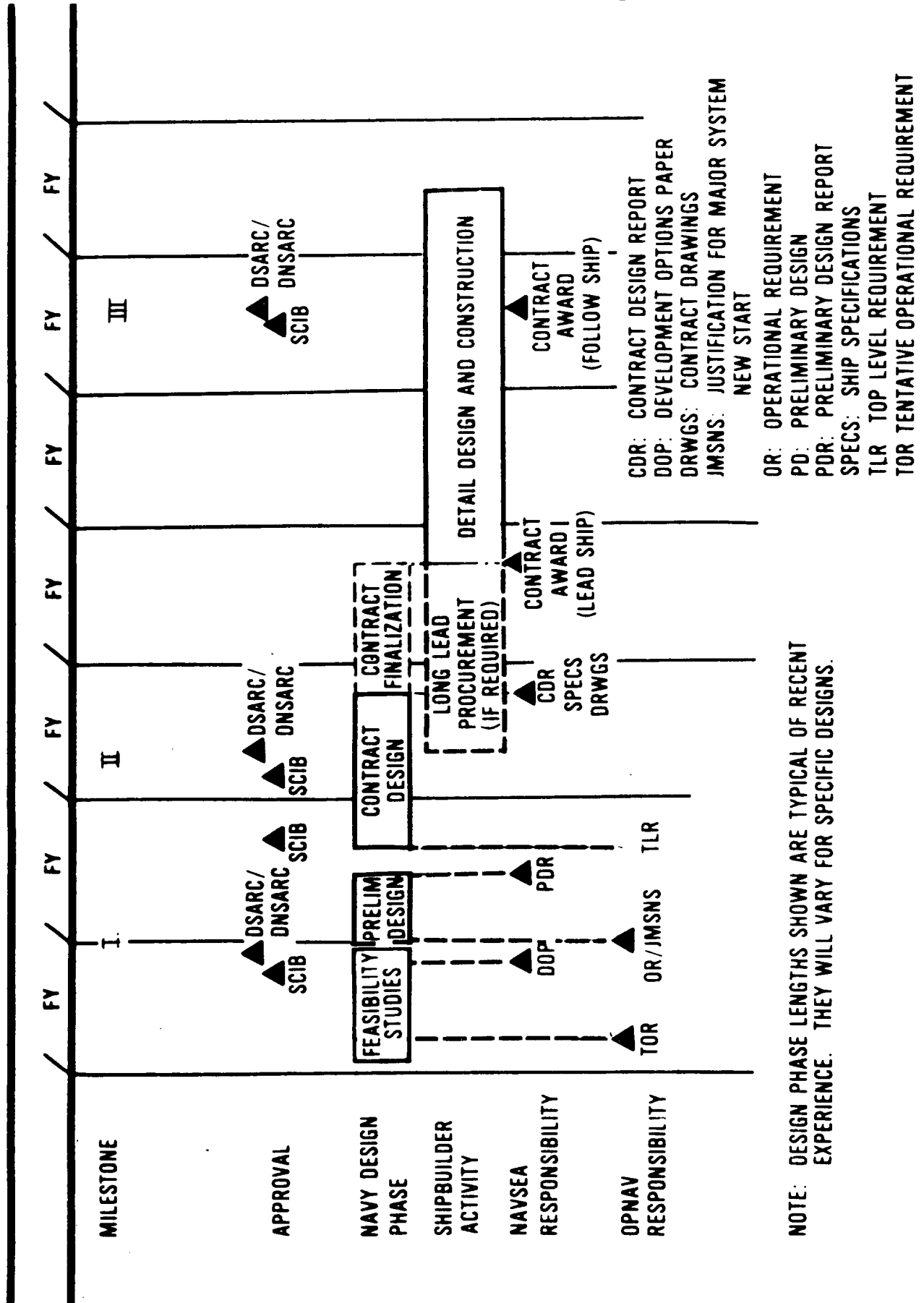
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# NAVAL SHIP ACQUISITION PROCESS



TOP LEVEL REQUIREMENTS

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OUTLINE

## 1. OVERVIEW

- 1.1 Objectives and Scope
- 1.2 Constraints
- 1.3 Design Guidance
- 1.4 Summary of Major Ship Characteristics

## 2. MISSION STATEMENT

- 2.1 Mission
- 2.2 Primary Tasks
- 2.3 Secondary Tasks

## 3. TOTAL SHIP REQUIREMENTS AND CHARACTERISTICS

- 3.1 Warfare Area Capabilities, Including C<sup>3</sup>
- 3.2 Detectability
- 3.3 Survivability, Including Passive Protection
- 3.4 Mobility
- 3.5 Operating Environment
- 3.6 Utilization and Operational Availability
- 3.7 Logistic Support
- 3.8 Manning
- 3.9 Flexibility for Change, Including Space and Weight Reservations
- 3.10 Training

## 4. SUBSYSTEM REQUIREMENTS AND CHARACTERISTICS

- 4.1 Structure
- 4.2 Propulsion System
- 4.3 Electric Plant
- 4.4 Command and Surveillance
- 4.5 Auxiliary Systems
- 4.6 Outfit and Furnishings
- 4.7 Armament
- 4.8 Other

Enclosure (2)

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PROGRAM DOCUMENTATION by ACAT for SHIPBUILDING PROGRAMS

<u>MILESTONE</u>	<u>ACAT I</u>	<u>ACAT IIS</u>	<u>ACAT IIC</u>	<u>ACAT III</u>
Program Initiation	TOR	TOR	TOR	TOR
<hr/>				
I	DOP	DOP		
(Preliminary and Contract Design Approval)	SCP	NDCP	DOP	DOP
	IPS**			
	JMSNS	OR	OR	OR
	SRM	SRM		
	SDDM***	SNDM***	NDCP***	SPRDD***
<hr/>				
II	TLR	TLR	TLR	TLR
(Lead Ship Approval, Long Lead Procurement*)	DCP	NDCP		
	IPS**			
	SRM	SRM		
	SDDM***	SNDM***	NDCP***	SPRDD***
<hr/>				
III	TLR	TLR	TLR	TLR
(Follow Ship Approval)	DCP	NDCP		
	IPS**			
	SRM	SRM		
	SDDM***	SNDM***	NDCP***	SPRDD***

- \* Only if long lead is required  
 \*\* If required  
 \*\*\* Decision Authority Document

## Key:

DCP - Decision Coordination Paper  
 DOP - Development Options Paper  
 IPS - Integrated Program Summary  
 JMSNS - Justification for Major System New Start  
 NDCP - Navy Decision Coordination Paper  
 OR - Operational Requirements  
 SCP - System Concept Paper

SDDM - Secretary Defense Decision Memorandum  
 SNDM - Secretary Navy Decision Memorandum  
 SPRDD - Sponsor Program Review Decision Document  
 SRM - SCIB Review Memorandum  
 TLR - Top Level Requirement  
 TOR - Tentative Operational Requirements

Enclosure (3)